

# **NIGERIAN NUCLEAR REGULATORY AUTHORITY**

## **REPORT OF THE BASIC TRAINING COURSE ON NUCLEAR SAFETY, RADIATION PROTECTION, AUTHORIZATION AND INSPECTION OF RADIATION SOURCES FOR NEW AND UPCOMING NNRA REGULATORS, 13<sup>th</sup> – 24<sup>th</sup> MAY 2019, PORT HARCOURT, RIVERS STATE.**

### **Introduction:**

The Management of the Nigerian Nuclear Regulatory Authority approved the conduct of two weeks basics training programme for all new and upcoming Regulators of the Authority. The training course for new and upcoming regulators commenced on Monday 17<sup>th</sup> June, 2019, with the opening formalities. The Course Director, Dr. Nasirudeen A. Bello, and the Zonal Coordinator of SSZO, Audu Mohammed in their opening remarks thanked the Acting Director General/CEO, Dr. Ya'u Usman Idris and the top management team of NNRA, for graciously approving the training course for regulatory officers of NNRA. They commended the laudable initiative of the Management and charged the participants to make maximum utilization of the opportunity offered by the training, to improve on their knowledge and enhance work performance. Furthermore, the Zonal Coordinator requested the management to domesticate the International Atomic Energy Agency (IAEA) training model to reflect NNRA and the Nigerian environment, by including Administrative Personnel in subsequent trainings of this nature, in order to equip them with the basic knowledge of administrative and regulatory activities.

This was preceded with the introduction of participants, facilitators and registration of participants.

### **2. Objectives of the Training Course:**

The major objectives of the basic training course for new and upcoming regulators were as follows;

- I. To provide a broad overview of all the concepts in nuclear safety, radiation protection, authorization and inspection of radiation sources.
- II. To equip regulators with in-depth and requisite knowledge needed in carrying out regulatory functions, so as to ensure the protection of life, health, property and the environment from the harmful effects of ionizing radiation in the North West in particular and the country at large.

### 3. Opening

The training course is to provide the require broad base foundation for all new and upcoming Regulators. This is specially done since the New or Upcoming Regulators come with vast spectrum of Education Qualification and Training. The training Course was declared opened by the representative of the Ag.DG/CEO and the Course Director, Dr. Nasiru Bello

#### 4.0 Participants:

The BTC had Forty-three (43) participants. In the same manner, members of Local Organizing Committee, Ad hoc Committee and Resource Persons are presented below:

#### 4.1 Resource Persons

- i. Dr. Nasiru Bello
- ii. Mr. Audu Mohammed
- iii. Mrs. Vincent-Furo E. I.
- iv. Mrs. Ovuomarie K. S.
- v. Mr. Saleh N. A.
- vi. Ms. Orupabo E. Y.
- vii. Ms. Abai I. J.
- viii. Mr. Kenneth Nkeeh
- ix. Mrs. Essien E. C.
- x. Mr. Esendu N. B.
- xi. Mrs. Izuegbu, I.
- xii. Mr. Mfon Utah

#### 4.2 Local Organizing Committee

- i. Mr. Audu. U. M.
- ii. Mr. Ajibade Lookman
- iii. Mrs. Essien, Ememobong
- iv. Mr. John Osharena
- v. Mr. Emiko Esiategiwa
- vi. Alazigha Bekeowei

#### 4.3 List of Participants

S/N	SURNAME	OTHER NAMES
1	NKANTA	SAMUEL PHILIP
2	ESHIEMOMOH	OSIVUEYAMHE ALIYU
3	EJEMBI	JOHNPOL IDOGA
4	LUKA	SOLOMON
5	MBANYANG	MATUDI ISA
6	IHEDIOHANMA	NOBLE NWACHINEMERE
7	OKOTIE-EBOH	LAWRENCE
8	OKAWELE	KELVIN NNAMDI
9	EZEMAGU	OKECHUKWU CALEB
10.	OGBU	CHUKWUEBUKA ALEX
11	PATRICK	BREPI SOLOMON
12.	IWEGBU	AKALAKA CHRISTIAN
13	ACHUONU	IKENNA BETHEL ALISON
14	AMAIN	EPIDIPEREKUMO

15.	AKPA	PAULINUS OGBONNAYA
16.	OMOTINUGBON	FEMI DANIEL
17.	OEDEDE	WHYTE BEDFORD
18.	ETIM-AKANIMO	MAUREEN
19.	EMEJIAKA	EMEKA EGBU
20.	ONOJA	CHRISTIAN UCHECHUKWU
21.	OGEDEGBE	BEST OKPU
22.	ETIM	AKANIMO EDEM
23.	SULAYMAN	MUHAMMAD IYAJI
24.	OKORO	FIDELIS TOCHUKWU
25.	IGBINAKE	OSAKPAMWAN
26.	AMABEBE	MAUREEN NIMI
27.	OGBU	LUCY CHINEYE
28.	WOGU	KELECHI
29.	HANACHOR	JONATHAN HANACHOR
30.	OMEKWE	ISAAC
31.	SALA	LAZARUS TSADO
32.	MBATO	CHARLES IFEANYI
33.	UCHE-ELUWA	OGECHI
34.	KOMOLAFE	MICHAEL O.
35.	ADEBAYO	ADEWALE ABIOLA
36.	FERREIRA	OLALEKAN RICHMOND
37.	EKHATOR	PIUS EFOSA
38.	ONYEOCHA	MOFOLUSADE A.
39.	AHUCHE	CHINEDU H.
40.	AKPA	EMMANUEL C.
41.	AKONO	AYEBAWANAEMI
42.	PRINCE	IHEANACHOR IKECHUKWU
43.	ONU	PETER C.

## 5.0 Training Programme

The programme of the training Course consisted of Lectures, discussions, examination, evaluation of the training course. The following topics were covered during the technical sessions:

- Radioactivity;
- Interaction of Radiation with matter;
- Radiation Sources;
- Quantities and units;
- Overview of Radiation practices
- Practice specific regulations for medical exposures
- Feedback from inspection of radiology facilities in Nigeria;
- Shielding calculations;
- Occupational radiation protection;
- Biological effects of ionizing radiation;
- Principles of Radiation Protection and the international framework;
- Safety, security of sources, public exposure protection;
- Features of X-ray facility Design;
- Radiation Detectors;
- Radiation protection programme for radiology department;
- Individual Monitoring: External Exposure;
- Patient Dosimetry;
- Transport of Radioactive Materials: transport safety Regulations;
- Transport safety: Packages, Labeling, Placarding, Responsibilities;
- Emergency Preparedness: Emergency response Plan;
- Radiation sources and equipment in radiology: X-ray production, radiographic unit;

- Radiation sources and equipment in radiology: fluoroscopy, interventional radiology, CT scanner;
- Radiation sources and equipment in radiology: Mammography;
- Radiation sources and equipment in radiology: Dental x-ray;

### **5.1 Training Materials**

The participants were provided with soft copies of all the presentations.

### **5.2 Examination**

The participants were examined after the training course. The exam comprised of Sixty (60) Multiple Choice Questions (MCQs) to test the understanding of the participants and ascertain whether the objectives of the training course were met. After the exam, the scripts were marked and 20 out of 24 participants, representing 83.3% of the participants scored above 60% mark

### **6.0 Observations:**

The following were some of the significant observations during the Training Course:

- i. The Time table for this BTC did not give room for Group Discussions and Exercises;
- ii. Question and Answer session for each Lecture was generally not adequate (short). Thus, some Resources Person could not cover all questions within the time frame of each Lecture;
- iii. Concentration of most participants declined in the second week of the training as most participants were more concerned on taking the quiz on Day 10: This became more reinforced when the participants were informed that this the score of the quiz would form part of personnel assessment and would to a great part influence their chance of being promoted to the next rank;
- iv. The focus of most participants gradually declined the second week due to fatigue from daily commuting on bad road to the venue of the BTC;
- v. Majority of the Resource Person presenting the Lectures were not giving sufficient time to prepare. This was very conspicuous during the initial days of the BTC;
- vi. Train-the Trainer was not done for the Resource Persons prior to this BTC;
- vii. Majority of the Resource Person were from the South-South Zonal Office resulting to familiarity to an extent;
- viii. The BTC was done without practical demonstrations or video presentations; and
- ix. The number of questions in the quiz and time for the quiz surprisingly challenging which negate the objectives of the BTC.
- x. The attendances on the part of participants were very commendable.
- xi. There was no evaluation form for feedback from the training.

### **7.0 Recommendations:**

The Authority may wish to;

- i. The Time table for this BTC should be modified to include the following:
  - a. Group Discussion;
  - b. Particular demonstrations;

- c. Video presentations;
  - d. Exercises; and
  - e. More time for Question and Answer.
- ii. Place less emphasis on Quiz/Examination or usage of such result for assessment for staff promotion;
- iii. Ensure that the number of quiz questions are moderate with the appropriate time frame and the central objective of the training;
- iv. Conduct Train-the Trainer programme prior to any BTC;
- v. Enhance concentration of participants by lodging participants within the vicinity of venue of BTC; and
- xii. Majority of the Resource Person for each BTC should be from outside that particular Zone to reduce familiar faces and familiarity.
- xiii. The training period should be extended from two weeks to at least a period of 3 weeks; this will reduce the number of courses taken each day.
- xiv. Evaluation form should be design and administered for feedback and improvement purposes.
- xv. The zone should be allowed to conduct short training courses for it staff.
- xvi. Staff in the zone should be allowed to attend short term courses that are relevant to the NNRA

## **8.0 Acknowledgement**

The Course Director, the LOC members and staff of South-South Zonal Office, Port Harcourt wish to express our profound gratitude to the Ag. Director-General; Dr. Y.U. Idris and the Management of Nigerian Nuclear Regulatory Authority for the approval and support given to this training programme for Regulatory Officers in the SSZO